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VIA, ELECTRONIC FILING

The Honorable Jocelyn Boyd,
Chief Clerk/Executive Director,
The Public Service Commission of South Carolina
101 Executive Center Drive
Columbia, South Carolina 29210

Re: • **Dockets 2019-224-E; 2019-225-E; 2019-226-E and 2019-227-E**

Ms. Boyd:

The undersigned, on behalf of the South Carolina Solar Business Alliance, Inc., and Johnson Development Associates, Inc., (hereinafter together as, “SCSBA/JDA”), are hereby complying with this Commission’s Order No. 2020-63.

Introduction

Of the myriad changes made by the South Carolina General Assembly to this state’s energy statutes when adopting Act No. 62 of 2019 (“Act 62”), none are more far reaching or have greater implications for South Carolina’s energy future than §58-37-40, which deals with electrical utility integrated resource planning.

Integrated Resource Plans (“IRPs”) have far reaching implications for a litany of issues that fall under this Commission’s purview and that flow directly from Act 62 and beyond, including but not limited to avoided cost rates, Voluntary Renewable Energy Program bill credits, value of solar calculations for customer-sited generation, community solar bill credits, grid modernization considerations, utility cost tests for energy efficiency and demand side management programs, and certification of any proposed new major generating facilities. In short, IRPs are the foundation for ensuring utility investment decisions and rates are in the best interest of customers and that accurate price signals are being sent to market participants like solar developers.

Revised S.C. Code Ann., §58-37-40 fundamentally changes the IRP requirements for electrical utilities, while significantly expanding Commission oversight of these issues. The legislation provides for intervention and discovery within an IRP proceeding and requires this Commission to either approve, modify, or deny an electrical utility's IRP.

Although S.C. Code Ann., §58-37-40 is quite prescriptive in many regards, the statute nevertheless delivers substantial deference to this Commission by requiring further interpretation and refinement of phrases like “fairly evaluating,” “various reasonable scenarios,” “low, medium, and high cases,” “long-term forecast,” “reasonable options,” and “other foreseeable conditions that the commission determines to be for the public interest.” As further articulated below, many of these requirements are susceptible to a broad range of interpretation that plead for additional guidance as to Commission expectations.

As recently noted by a leading energy consulting firm, The Brattle Group, “The ‘old’ IRP model doesn’t work anymore. Traditional IRP approaches are ill-equipped to address almost every major driver that is reshaping the grid.”¹ This Commission is well aware that a new era of energy policy and regulatory complexity has arrived. Making the proper investment of time and attention on the front-end of these difficult regulatory issues will better ensure the final outcomes serve the best interest of all South Carolinians.

Procedural Next Steps

Given the substantial changes within S.C. Code Ann., §58-37-40, SCSBA/JDA recommends that this Commission establish a generic docket for purposes of adopting a uniform set of IRP guidelines to clarify and support implementation of the new statutory language. This is not a proposal to establish new rules or regulations in accordance with the South Carolina Administrative Procedures Act, although that may be necessary in the future. Rather, SCSBA/JDA is requesting that the Commission consider a range of critical issues that will have a material impact on the quality and transparency of electrical utility IRPs in South Carolina and provide additional guidance as to what this Commission views as best practices when it comes to satisfying the requirements of 58-37-40. SCSBA/JDA further request this proposal be adopted in furtherance of judicial economy and consistency in statutory interpretation.²

SCSBA/JDA also recommends that as part of this initial generic IRP docket, the Commission establish IRP filing requirements that are coordinated with other dockets that rely on updated IRP information, like avoided cost. Now that the challenging statutory timelines for initial compliance with 58-37-20 have been satisfied, this Commission has the opportunity to take the proper steps in ensuring that future procedural schedules relating to a range of interdependent issues, such as IRP filings and avoided cost, are designed to maximize efficiency of Commission and Party resources and to deliver practicable regulatory outcomes for utility customers and South Carolina’s energy marketplace as envisioned in Act 62.

¹ Kathleen Spees, The Next Generation of Resource Planning, National Conference of State Legislatures 2019 Legislative Summit, slide deck at 3.

² In the past, this Commission has taken a similar approach to ensuring consistency in substantive and procedural IRP matters. Specifically, in 1991, the Commission issued (in a generic IRP proceeding) Order No. 1991-1002.

SCSBA/JDA requests that this Commission establish a generic docket to be opened for purposes of adopting a uniform set of IRP guidelines and best practices to clarify and support implementation of the new statutory language, which includes a procedural schedule that also accommodates the filing of electrical utility IRPs prior to the end of 2020 and coordinates procedural schedules for future interdependent issues that rely on updated IRP information.

Opportunities for Commission Guidance and Establishment of Best Practices

Modeling Expectations

Modeling is a core component of integrated resource planning. Identifying a plan that appropriately balances cost, risk, and other outcomes requires numerous modeling exercises that focus on different aspects of the utility system and collectively guide decision-makers to a final determination. Each of those exercises in turn must utilize reasonable data inputs, employ an appropriate approach to representing the system of interest, and produce results that appropriately inform other elements of the planning process and ultimately selection of a prudent long-term resource plan. All aspects of the modeling process must be transparent in order for stakeholders and the Commission to participate in and fully evaluate the resource planning process and its results.

The following modeling exercises are essential to identifying a prudent resource plan. Prior to an electrical utility undertaking these time-intensive and laborious modeling exercises, significant benefits would accrue from Commission guidance that preceded electrical utility IRP development and filings. We also cite to several recent cases where these modeling tasks were discussed.

- 1) Load forecast that identifies long-term sales and peak demand expectations.^{3,4}
- 2) Resource adequacy study that identifies an appropriate planning reserve margin to ensure reliability standards are met.⁵
- 3) Resource capacity value studies that determine the capacity contribution of various resources towards meeting resource adequacy needs.⁶

³ SC 58-37-40(B)(1)(a)

⁴ Drawing on evidence from Appalachian Voices Witness Wilson and others, the Virginia State Corporation Commission in its 12/7/18 order on Dominion Virginia's IRP concluded that "the Commission has considerable doubt regarding the accuracy and reasonableness of the Company's load forecast for use to predict future energy and peak load requirements. In reaching this conclusion, the Commission has considered all evidence presented in this proceeding including the alternative forecasts presented, as well as trends in the Company's historical load forecasts." The SCC further specified an alternative load forecast from the record that Dominion must use in revising its IRP.

⁵ SCPSC Docket Nos. 2019-185-E and 2019-186-E, Independent Third-Party Consultant Final Report at 25-27, discussing SACE/CCL Witness Wilson's critique of Duke Energy's resource adequacy modeling. "Power Advisory notes that Mr. Wilson's evidence is compelling that Duke's approach to modeling the impact of extreme temperatures is problematic."

⁶ In Dockets 2019-184-E, 2019-185-E, and 2019-186-E, the SCPSC rejected DESC and Duke's treatment of solar capacity value and adopted alternative treatments proposed by other parties. SCPSC Order 2019-847 at 35: "After considering the evidence of record on this issue, the Commission concludes that DESC's position that incremental energy supplied by solar QF facilities will not allow it to avoid any future capacity is not reasonable." And SCPSC Order 2019-881(A) at 112: "Mr. Horii's proposal to rely on 'current conditions' for the purpose of estimating the seasonal capacity value of the next group of solar resources accomplishes this objective. Further, this Commission is

- 4) Capacity expansion modeling, under various scenarios and sensitivities, that optimizes development of a range of candidate resource portfolios that satisfy customer demand, including timing, type, and amounts of resource additions and retirements.⁷
- 5) Production cost modeling that simulates operation of the utility system with various candidate resource portfolios in place and under various scenarios and sensitivities and calculates long-term system production costs.⁸
- 6) Capital cost modeling that calculates revenue requirements needed for cost recovery of construction and financing of utility-owned assets for each candidate resource portfolio under the various scenarios and sensitivities.

The primary outputs of resource planning are system cost estimates, which represent the costs that customers would be expected to bear for the candidate resource portfolios under various scenarios and sensitivities. The typical cost metric used in resource planning studies is total revenue requirements (production costs plus capital costs) on a net present value basis. In order for stakeholders and the Commission to be able to transparently compare the costs of the candidate resource portfolios, total NPV costs should be presented for each portfolio, under each scenario and sensitivity case, rather than presenting cost outputs as changes relative to a base case. The latter approach can obscure the total cost of the base case and distort consideration of the modeling results.

An additional and important modeling consideration is the time horizon over which the modeling is performed and the results that are reported. A utility's resource plan may only cover the next 15 years, but decisions made in those years will have cost impacts for many decades to come. Typically, modeling covers 20 or 30 years, but can cover more. The Commission must set an appropriate balance between capturing long-term effects and including less certain projections as time horizons lengthen.

Sensitivity Analysis

The future is uncertain. Resource planning must consider that uncertainty in a comprehensive manner in order to select a prudent long-term plan. The most common approach to doing so is scenario and sensitivity analysis. Scenario analysis examines the effect of a collection of data inputs and assumptions on the modeling outcome. For example, a Scenario A

prohibited from making a decision based on speculation or surmise. The Companies' recommendation would require us to venture down this path. This Commission cannot make a decision based on an assumption that unreasonably deflates the value of avoided cost. As a result, the Commission finds the preponderance of the evidence in the record supports a finding consistent with ORS witness Horii's position on this issue and his position is just and reasonable."

⁷ Given the countless possible resource plans that a utility could theoretically adopt, capacity expansion modeling is an essential tool for narrowing down the possible plans using optimization software. Using this industry standard tool is necessary for achieving the directive in SC 58-37-40(B)(1)(e) "several resource portfolios developed with the purpose of fairly evaluating the range of demand-side, supply-side, storage, and other technologies and services available to meet the utility's service obligations." However, in SCPSC Docket 2019-9-E, SCSBA/JDA's Comment Letter dated April 18, 2019 on DESC IRP states: "Additionally, there is no indication that the Company has used optimization software in developing or evaluating the various scenarios considered...."

⁸ SCPSC Docket No. 2019-184-E, Independent Third-Party Consultant Final Report at 38-39, discussing DESC avoided energy costs calculated by production cost modeling. Power Advisory expressed concern that the modeling results for the solar-specific avoided energy rates were "not reliable." In a directive dated 1/3/20, the SCPSC adopted avoided energy rates that were not based on the unreliable production cost modeling runs.

could use a base case load forecast, high natural gas prices, and no CO2 price, while Scenario B might use a high case load forecast, base case natural gas prices, and mid-CO2 price. Sensitivity analysis examines the effect of changing a single data input or assumption in isolation – for example, performing the same model run with each of 3 different gas price inputs to ascertain the impact of gas price assumptions on the final results.

Designing scenario and sensitivity analyses to capture the uncertainties facing the utility and its customers is another crucial task within resource planning. If scenarios and sensitivities are poorly designed, then modeling results will not be representative of the possible futures that may unfold, and the best plan for customers will be overlooked, potentially saddling customers with excessive costs.

There are several key inputs and assumptions that must be treated with care when designing scenarios and sensitivities. While not intended to be exhaustive, SCSBA/JDA presents these inputs and questions as examples of what a resource planning process must consider.

- 1) CO2 prices – How many CO2 price trajectories are needed to cover the range of possible futures? Are there any zero CO2 price cases? What are prices in the upper bound case?
- 2) Load forecast – given the load forecast methodology, what assumptions might change to produce substantially altered sales or peak demand outcomes?⁹ How are customer-sited DERs such as electric vehicles and device timers represented?
- 3) Natural gas prices – How might gas commodity supply and demand diverge from base case assumptions to impact prices, and what is a reasonable range of price trajectories? What gas delivery contracts does the utility have in place today, when will these contracts expire, and what will the cost of gas delivery be in the future? How might delivery costs be impacted by the potential need for new pipelines, and by the outcome of legal disputes over projects such as the Atlantic Coast Pipeline?¹⁰
- 4) Transmission and distribution infrastructure – Are there transmission expansion or upgrade projects that would create a net savings for customers by reducing production costs or planning reserve margins?¹¹ What impact would grid modernization have on potential resource portfolios?

Data Sources

In order to develop an IRP, utilities and other stakeholders must rely on existing data sources in order to complete nearly every relevant section of the resource plan.¹² The source, accuracy, and transparency of this data is critically important to the strength of the analysis derived from the data, and for the ability of stakeholders, regulators, and staff to comprehend,

⁹ For example, large-scale electrification. Kathleen Spees, The Next Generation of Resource Planning, National Conference of State Legislatures 2019 Legislative Summit, slide deck at 7.

¹⁰ <https://www.utilitydive.com/news/supreme-court-to-take-on-atlantic-coast-pipeline-appeal/564426/>

¹¹ Kahrl et al. The Future of Electricity Resource Planning. LBNL-1006269 (2016) at 46-51 and 71-72 discusses transmission expansion in the context of resource planning. <https://emp.lbl.gov/sites/all/files/lbnl-1006269.pdf>

¹² This is true of many of the specific requirements that Act 62 establishes for utility IRPs, including (1) long-term forecast of the utility's sales and peak demand; (2) generation technology and fuel cost sensitivities; (3) electrical transmission investment planning; and (4) evaluating high, medium, and low cases for the adoption of renewable energy and cogeneration, energy efficiency, and demand response measures, among others. See, S.C. Code Ann. §58-37-40(B).

evaluate, and assess such analysis. Parties developing IRPs should be required to use up-to-date data from recognized, reputable sources, and the Commission should establish standards regarding the source and the availability of this data.¹³ These data sources play a key role in IRP proceedings, as different data sets can tell dramatically different stories, and it may be difficult for the Commission and/or stakeholders to access all relevant data sources in the course of an ongoing IRP review proceeding in which there are many competing priorities and needs. For these reasons, it would be appropriate for the Commission to establish guidance as to acceptable data sources to be utilized in the IRP proceedings that will take place pursuant to Act 62.

While SCSBA/JDA submits that this issue warrants further discussion and consideration, the following represent examples of recognized industry data sources that could be appropriately utilized in IRP proceedings:

- Annual Technology Baseline (ATB) from the National Renewable Energy Laboratory (NREL)
- Greentech Media/Wood Mackenzie
- Lazard

Additionally, to the extent the utility must utilize confidential data in the development of an IRP, the Commission should establish guidance regarding the appropriate process for intervening stakeholders to obtain such information without delay through discovery. For example, the Commission could provide guidance regarding data that the utility must provide at the time it submits its IRP, to be immediately available to intervening parties pursuant to valid non-disclosure agreements. This would prevent delays or confusion that may occur during the discovery process and would assist intervenors and the Commission in preventing discovery disputes regarding this data. Given the critical importance of information transparency to intervenors' ability to evaluate and, if necessary, propose alternatives to the utility's IRP, SCSBA/JDA submits that the Commission's guidance could also include the requirement that the utilities make available their models through the discovery process, including the parameters under which intervenors could access the models.

Similarly, the Commission should consider guidance regarding intervenor requests for the utility to re-run certain models using alternative inputs or sensitivities. Such requests would be consistent with Act 62's express requirement that utilities provide sensitivities and various reasonable scenarios as part of the IRP process, and express guidance from the Commission regarding intervenors' rights to request and obtain such re-runs would be appropriate and helpful.

Portfolio Considerations

Act 62 expressly requires utility IRPs to include multiple portfolio scenarios, including:

“[S]everal resource portfolios developed with the purpose of fairly evaluating the range of demand-side, supply-side, storage, and other technologies and services

¹³ For example, in North Carolina, the NCUC required Duke to utilize publicly available Energy Information Administration (EIA) data regarding combustion turbine costs in the calculation of avoided cost rates, rather than relying on proprietary data. *See*, Public Service Commission of South Carolina, Docket Nos. 2019-185-E and 2019-186-E, *Hearing Transcript Vol. 1* at 126-127 (Snider Cross-examination).

available to meet the utility's service obligations. Such portfolios and evaluations must include an evaluation of low, medium, and high cases for the adoption of renewable energy and cogeneration, energy efficiency, and demand response measures..." S.C. Code Ann. §58-37-40(B)(1)(e) (emphasis added).

Although the concept of a "low, medium, and high" case for these various portfolios may appear relatively straightforward, it would be beneficial for the Commission to establish parameters and guidance regarding the appropriate considerations for developing these resource portfolios. For example, in states considered best-in-class in this area, including Massachusetts and California, energy efficiency scenarios achieve energy savings of approximately 2.5% (high); 1.5-2% (medium); and 1% (low). Establishing reasonable parameters for designing resource portfolios that satisfy the requirements of Act 62 will result in candidate portfolios that reasonably and accurately reflect "the range of demand-side, supply-side, storage, and other technologies and services available to meet the utility's service obligations," which will result in a more accurate and more useful IRP.

Additionally, and particularly as many utilities and regulators are increasingly incorporating low-carbon resource planning moving forward, it is important that economic fossil fuel generator retirements are appropriately modeled and incorporated into utility IRPs. Specifically, many utility resource planning models do not allow these units to retire and instead assume that existing capacity will continue to run if it is not expressly retired. It is possible to model dynamic economic retirements, although this process requires establishing annual optional resources to determine whether the use of one will result in the retirement of an existing unit. Similarly, utilities can define a "retirement portfolio" that programs retirement years from certain units in order to evaluate the resulting cost changes.

For example, in North Carolina the NCUC is requiring Duke in its 2020 IRPs to:

"...include an analysis that removes any assumption that their coal-fired generating units will remain in the resource portfolio until they are fully depreciated. Instead, the utilities shall model the continued operation of these plants under least cost principles, including by way of competition with alternative new resources. In this exercise the full costs of disposal of coal combustion wastes shall be included in making any comparison with alternative resources. If such analysis concludes that continued operation of the utilities' existing coal-fired units until they are fully depreciated is the least cost resource alternative, then the utilities 2020 IRPs shall separately model an alternative scenario premised on advanced retirement of one or more of such units and shall include in that alternative scenario an analysis of the difference in cost from the base case and preferred case scenarios."¹⁴

These types of requirements provide appropriate guidance regarding this important issue, and SCSBA/JDA submits that it would be appropriate for the Commission to consider whether and to what extent it should establish such requirements for utilities in South Carolina prior to the filing of IRPs pursuant to Act 62.

¹⁴ North Carolina Utilities Commission, Docket No. E-100 Sub 157, *Order Accepting Integrated Resource Plans* at 90 (Aug. 27, 2019).

Stakeholder Input

Given the wide-ranging implications that IRPs have for South Carolina's energy future, it is incumbent upon our electrical utilities to establish, and for the Commission to encourage, a substantive stakeholder engagement process designed to both educate and solicit input from interested parties that will be affected by the electrical utilities' plans.

For example, Consumers Energy, a vertically integrated utility serving approximately 1.8 million electric customers in Michigan, recently implemented a comprehensive stakeholder engagement process that included both public forums designed to educate and solicit feedback from the general public, as well as holding technical conferences to engage more sophisticated stakeholders during the IRP development process.¹⁵ SCSBA/JDA submits that this type of stakeholder involvement and input should be utilized here as part of the IRP development and evaluation processes.

Conclusion

SCSBA/JDA appreciates this opportunity to comment on and propose next steps for proper implementation of new code §58-37-40 and looks forward to future engagement on IRP related issues before this Commission.

To summarize, SCSBA/JDA requests that the Commission:

1. Establish a generic docket be opened for purposes of adopting a uniform set of IRP guidelines and best practices to clarify and support implementation of the new statutory requirements related to §58-37-40, which include, but are not limited to, topics related to modeling expectations, sensitivity analyses, data sources, portfolio considerations, and stakeholder engagement;
2. Ensure the generic docket provides an opportunity for direct and reply comments from Intervenor, Office of Regulatory Staff, and electrical utilities, as well as an opportunity for oral arguments to be scheduled at the Commission's discretion;
3. Set a procedural schedule that:
 - a. Establishes an active generic docket during the second quarter of 2020 that informs a Commission order establishing IRP guidelines and best practices; and
 - b. Provides adequate time for electrical utilities to file IRPs prior to the end of 2020 that are informed by those guidelines and best practices, and
4. Ultimately establish coordinated procedural schedules for IRPs and the suite of interdependent issues that rely on updated IRP information, such as avoided cost.

¹⁵ *Consumers Energy 2018 Integrated Resource Plan* has been included as an Appendix.

Respectfully Submitted,

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2019-225-E, 2019-226-E and 2019-227-E, *via electronic mail*